



No Moving Parts

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Hansen was sitting at the control board in the single building on Communications Relay Station 43.4SC, when the emergency light flashed on for the first time in two hundred years.

With textbook-recommended swiftness, he located the position of the ship sending the call, identified the ship and the name of its captain, and made contact.

"This is Hansen on 43.4SC. Put me through to Captain Fromer."

"Fromer here," said an incredible deep voice, "what the devil do you want?"

"What do I want?" asked the astonished Hansen. "It was you, sir, who sent the emergency call."

"I did no such thing," said Fromer with great certainty.

"But the light flashed—"

"How long have you been out of school?" Fromer asked.

"Almost a year, sir, but that doesn't change the fact that—"

"That you're imagining things and that you've been sitting on that asteroid hoping that something would happen to break the monotony. Now leave me the hell alone or I'll put you on report."

"Now look here," Hansen began, practically beside himself with frustration, "I saw that emergency light go on. Maybe it was activated automatically when something went out of order on your ship."

"I don't allow emergencies on the Euclid Queen," said Fromer with growing anger. "Now, if you don't—"

Hansen spared himself the indignity of being cut off. He broke contact himself. He sighed, reached for a book entitled *Emergency Procedure Rules*, and settled back in his chair.

Fifteen minutes later the emergency light flashed on for the second time in two hundred years. With its red glow illuminating his freckled excited face, Hansen triumphantly placed another call to the Euclid Queen.

"This is Hansen on 43.4SC. Let me speak to Captain Fromer, please."

"Er—the Captain has asked me to contact you. I'm the navigator. I was just about to call you. We have a small problem that—"

"I'll speak to the Captain," Hansen repeated grimly.

"Now see here. I'm perfectly capable of handling this situation. Actually, it's hardly even an emergency. You were, it seems, signaled automatically when—"

"If you'll check your emergency procedures," Hansen said, holding his thumb in the Rule Book, "you'll note that the Relay Station Attendant contacts the Captain personally during all emergencies. Of course, if you want to violate—"

"Look, old man," said the navigator, now sounding on the verge of tears, "try to realize the spot I'm in. Fromer has ordered me to handle this thing without his assistance. He seems to feel that you have a grudge of some kind—"

"If you don't put me in touch with Captain Fromer in five minutes, I'll put through a call to Sector Headquarters." Hansen signaled off contact. If he knew nothing else about the situation, he knew that he had the upper hand.

Five minutes later Captain Fromer called him back. "I am calling in accordance with emergency procedures," Fromer said between clinched teeth. "The situation is this: We are reporting an emergency—"

"What class emergency?" Hansen interrupted.

"Class?" asked Fromer, obviously caught off guard.

"Yes, Captain. There are three classes of emergencies. Major class, which would include death and injury. Mechanical class, including malfunction of Hegler units and such. And General class—"

"Yes, yes, of course, General class by all means," Fromer said hurriedly. "You see, it's hardly even an emergency. We—"

"Just what is the nature of the trouble, Captain?"

"Why, uh, well it seems that we were doing a preliminary landing procedure check, and ... "

"Yes, go on."

"Why, er, it seems that we can't get the door open."

It was Hansen's turn to be taken aback. "You're pulling my leg, sir."

"I most certainly am not," Captain Fromer said emphatically.

"You really mean that you can't open the door?"

"I'm afraid so. Something's wrong with the mechanism. Our technical staff has never encountered a problem like this, and they advise me that any attempt at repair might possibly result in the opposite situation."

"You mean not being able to get the door closed?"

"Precisely. In other words, we can't land."

"I see. Then I'm afraid there's nothing I can do except advise Sector Headquarters to send an emergency repair crew."

Captain Fromer sighed. "I'm afraid so, too. How long will it take for a message to get there with your transmitting equipment?"

"Two days, Captain. At a guess, there'll be a ship alongside within the week. You'll be maintaining your present position, I assume?"

"Oh, we'll be here, all right," Fromer said bitterly. Then he cut contact.

As the single occupant of a large asteroid with nothing but time and boredom on his hands, Hansen was enjoying the whole situation immensely. He allowed himself the luxury of several dozen fantasies in which his name was mentioned prominently in galaxy-wide reports of the episode. He imagined that Captain Fromer was also creating vivid accounts—of quite another sort—that would soon be amusing several hundred billion news-hungry citizens of the Federation.

When the repair ship arrived, it came, to Hansen's astonishment, to the asteroid, and not alongside Fromer's ship. He soon found out that there was someone else who shared the Captain's embarrassment.

"I'm Bullard," said a tall, thin, mournful man. "Mind if I sit?"

"Help yourself," Hansen waved a hand toward the meager accommodations. He had no idea why a Senior Engineer was being so deferential, but he enjoyed the feeling of power.

"You're probably wondering about a lot of things," Bullard began sadly. "Frankly, we don't have any ideas about how we can fix Captain Fromer's door." He waited to let that sink in. Then he continued: "It took us three days back at the base to find out that when these ships were built, almost five hundred years ago, nobody bothered to include detail drawings of the door mechanism."

"But why? You certainly know how to build—"

"We know how to build Star Class ships, sure. We've built a few in the past century or two. There's never been need for replacement, really."

These ships are designed to last forever. The original fleet was conceived to fill the System's needs for a full thousand years."

"But the doors on the few ships that have been built. How—"

"The ship's we've built were exact duplicates of Captain Fromer's ship—except for the door." Bullard's long face radiated despair. "No one ever questioned why the door mechanism wasn't included in the original plans. We simply designed another type—a different type—of door."

"Well, you certainly can find out how this particular door works, can't you?"

"I hope so," Bullard said, wringing his hands. "But we have a couple of other problems. Number one, Captain Fromer has an extremely important passenger aboard. None other than His Exalted Excellency, R'thagna Bar. He is—or was—on his way home after concluding a treaty of friendship with the President of the Federation."

Hansen managed a whistle.

"Furthermore," Bullard continued, "His Excellency *has to be home soon* to get there in time for the mating season. This occurs once in a lifetime, I'm told, and this is his only chance to continue the ancestral rule—"

"Wait a minute," Hansen said. "Are you trying to say that you can't solve a simple problem like getting him home and getting him out of the ship? You can always cut it in two, can't you?"

"These ships were made to last forever," Bullard explained. "The hull is, of course, pseudo-met, but, not the kind of pseudo-met used for other applications. In short, about the only way you'll get in that ship is to vaporize it."

"But can't you simply disassemble the door mechanism? My God, how complicated can it be?"

"We're going to try to do just that," Bullard said without a trace of confidence. "As far as the complication goes, let me say just this: it's full of moving parts."

"What are you getting at?" Hansen asked.

"Just this. These ships are perfect mechanisms. There is hardly anything in them that could be called a moving part. Now a door has to open and close. Sure, we devised a simple, safe way to do it a few hundred years after the original fleet was built. The men who designed the original door mechanism felt, perhaps, that it was incongruous to include it in the first place. Maybe that is why they threw away the plans.

God knows, it is incongruous. Look! Here's a photo we took of one in a ship back at base."

Hansen scanned the photograph. It was a meaningless jumble. He handed it back. "Well, make yourself at home. I'm afraid that the only thing I can help with will be radio communication to Captain Fromer's ship."

"Good enough," Bullard said. "I'm expecting someone else tomorrow. After you bring him down, feel free to drop over and see me anytime."

Bullard went back to his ship, and Hansen went to bed. He dreamed of His Exalted Excellency R'thagna Bar, growing angrier day by day as the time of mating came closer. In his dream he suddenly came upon a magnificent solution to the problem, a solution involving a telepathic system of fertilization. He woke up before he had completely worked out the details.

Bullard's friend arrived the same morning. He was a small, dark active little man whom Hansen immediately disliked.

"Meet Dr. Quemos," Bullard said when Hansen dropped in on them. "Dr. Quemos is a specialist in the history of technology. He thinks he knows how our cute little door mechanism is made."

"Can't say for sure," Quemos said, "but I'd guess that those components are made of metal—real metal."

"I thought that metal was used only in jewelry," Hansen said.

Dr. Quemos grinned slyly. "That's what most people think. Actually, refined metal of various types was used in large masses, formed masses, for thousands of years. Historically speaking, the pseudo-mets are relatively new."

"It's difficult to imagine metal functioning as machinery," Hansen mused.

"And you say that this door mechanism has moving parts, lots of them?"

"Moving parts are nothing to be afraid of," Quemos said. "Here, look at this." He put something small on the table, much in the manner of a young boy dropping a garter snake in the midst of school girls. Bullard and Hansen crowded around. "Now, take turns," said Quemos sharply, "and don't drop it. It's priceless, I assure you." The ancient wrist watch with its transparent back was passed from hand to hand.

"Frightening little monster, isn't it," Bullard said.

"Those small round wheels are called gears," elucidated Quemos, "one gear turns another, which turns another, and so on. I rather imagine that your door is operated on some similar principle."

"I seem to be the one who asks all the schoolboy questions," Hansen began, "would somebody tell me why Captain Fromer doesn't take His Excellency to his home planet, land the ship, and then let his technical staff tear off the door mechanism?"

"We've gone through that," Bullard said wearily. "Unfortunately we need special tools. And there's no way to get them into the ship."

"Can I speak to Captain Fromer?" Quemos asked.

"Right away," Hansen said. He pressed his hand in various patterns on his belt. "This is Hansen. Let us talk to Captain Fromer, please."

"Fromer here. Who is it?"

"Dr. Quemos speaking. How is your passenger?"

"My passenger is fine. But he keeps telling me that he is very anxious to plant his seed. When can you get us out of here?"

"Plant his seed?" said Quemos.

"There's nothing salacious about this, I've been assured. He simply has a biological craving at this time in his life to—to plant his seed."

"I got problems like that, too," Bullard said, "but I don't go around telling everybody."

"Stop clowning," Fromer snapped, "you guys better find a way to fix this damn door or you'll have a galactic war on your hands. Anybody have any ideas yet?"

"We're sure that the door mechanism is made of metal," Quemos said, "and the construction is probably based on the principal of a worm gear."

"A what?"

"A worm gear, Captain," Quemos said patiently. "It's an ancient metal device that was sometimes used for closing large doors. There is also the possibility that the door is closed and opened by dogs. These seem to have been used, at least, to operate doors of undersea crafts. Although we're not quite certain about the function of dogs."

The captain maintained a stony silence.

"Also," Quemos continued, "we have unearthed, so to speak, a reference to a metal component called a babbitt—"

"Now see here!" Captain Fromer roared, "who do you think you're kidding with this talk about worms, dogs and rabbits—"

"Babbitts, Captain, babbitts! Perhaps a type of bearing. Anyway, we're at work on the problem, I assure you." Quemos motioned to Hansen that he was through talking.

During the next three days, Hansen twice visited Bullard and Quemos. On each occasion, he found the two men in trance-like conditions, ostensibly thinking through the problem that they had been assigned to solve, but more probably, Hansen guessed, brooding about the reaction of Sector Headquarters to their daily progress reports which Hansen had been relaying for them. Hansen had only sympathy for the people back at Sector Headquarters, for if these two experts were the Galaxy's two top trouble-shooters, the Federation, was not, as Hansen put it to himself, in very good shape to fight a war with one hundred billion enraged citizens who worshiped His Exalted Excellency R'thagna Bar almost as much as they did his seed.

Hansen went back to his reading, only to be interrupted with increasing frequency by message transmissions from an increasingly alarmed Sector Headquarters. Most messages were addressed to Bullard, and were bravely designed to disguise the senders' hysteria, while at the same time urging Bullard on to more magnificent efforts. A few messages, fairly representative of the state of affairs as time wore on reflected an increasing suspicion on the part of Sector Headquarters that Quemos and Bullard, although certainly tops in their fields, were not tops enough.

SEC HDQ BULLARD, COM. RLY. 43.4SC

PRESIDENT WOULD LIKE ESTIMATE OF WHEN DOOR WILL BE OPENED. YOU SURE YOU CAN HANDLE? EMPHASIZE THAT POLITICAL SITUATION NOW GETTING TOUCHY. REPEAT TOUCHY. R'THAGNA BAR CALLING ON PRESIDENT TODAY TO MAKE DEMAND THAT SEED BE PLANTED ON TIME. SURE YOU DON'T NEED MORE HELP?

CMD GENERAL

CMD GENERAL

NO HELP NEEDED. MAKING PROGRESS, ASSURE PRESIDENT. TODAY FOUND OUT METAL IN MECHANISM IS VERY HARD. IN CONSTANT RADIO TOUCH WITH FROMER. PASSENGER IMPATIENT BUT QUIETER. SLEEPS MORE NOW. THIS SIGNIFICANT? QUEMOS DEVELOPING THEORY OF MECHANISM. SAYS WILL TAKE TIME TO WORK OUT. HOW MUCH TIME WE HAVE? WHEN MUST SEED BE PLANTED?

BULLARD

SEC. HDQ. BULLARD, COM. RLY. 43.4SC

MUST HAVE ESTIMATE WHEN DOOR OPENS. THIS AN ORDER. AMBASSADOR THREATENING WAR. CAN'T GIVE DEADLINE OF SEED PLANTING TIME SINCE SUBJECT VERY TABOO. OUR BIOLOGISTS SAY R'THAGNA BAR SLEEPY SIGNIFICANT. MAY BE PRELUDE TO SEEDING TIME. TELL ABOUT QUEMOS THEORY IN NEXT COMMUNICATION. WILL EVALUATE HERE. NICE TO KNOW METAL IS HARD. KEEP UP GOOD WORK. PRESSURE HERE TO SEND YOU HELP. PRESIDENT SAYS WHOLE FEDERATION PRAYING FOR DOOR TO BE FIXED. SAYS TO HURRY UP.

CMD GENERAL

CMD GENERAL

NO ESTIMATE POSSIBLE. QUEMOS THEORY ALMOST COMPLETE. STATES THAT MECHANISM BUILT ON PRINCIPLE OF WORM GEAR. REPEAT. WORM GEAR. TODAY INSTRUCTED FROMER'S CREW TO JIGGLE MOVING PARTS OF MECHANISM AT RANDOM. PARTS WOULD NOT JIGGLE. FROMER STATES THAT R'THAGNA BAR SLEEPS ALL TIME AND COLOR CHANGES TO BLUE AND RED ON STOMACH. THIS SIGNIFICANT?

BULLARD

SEC HDQ BULLARD, COM. RLY 43.4SC

IMPORTANT YOU AMPLIFY LAST MESSAGE. RED AND BLUE ON STOMACH? WHY R'THAGNA BAR UNDRESSED? INVESTIGATE! PRESIDENT ORDERS HELP SENT. HELP ON WAY. REPEAT. WHY R'THAGNA BAR UNDRESSED?

CMD GENERAL

CMD GENERAL

FROMER ADVISES TELL YOU SHIPS PHYSICIAN HAS PUT R'THAGNA BAR IN REFRIGERATOR.

QUEMOS

SEC HDQ QUEMOS. COM. RLY. 43.4SC.

TAKE OUT OF REFRIGERATOR! THIS AN ORDER! WHY UNDRESSED?

CMD GENERAL

CMD GENERAL

BULLARD MAKING MODEL OF MY DRAWINGS. READY SOON. R'THAGNA BAR OUT OF REFRIGERATOR AS REQUESTED BUT SHIPS PHYSICIAN VERY ANGRY AND WANTS TO PUT BACK IN. COLOR ON STOMACH PINK AND YELLOW WITH BLUE SQUARES. THIS SIGNIFICANT?

QUEMOS

It went on like this for several more days. Hansen, at first amused, was now alarmed and completely convinced that both Quemos and Bullard were thoroughly useless. The messages were his only source of information, since both "experts" were too immersed in their work to talk with him. As his alarm grew, he decided that he might at least try to strike up a friendship with someone on board Captain Fromer's sealed ship—someone who might have something comforting to report. He called up the ship's navigator.

"This is Hansen. How're things going up there?"

"Ha!"

"What's that mean? Good or bad?"

"It means," the navigator said, while yawning, "that things are falling apart rapidly. In fact, in a day or two I don't think it'll make much difference whether or not they open that damn door."

"You, er, care to fill me in?"

"Why not?" said the navigator, with the voice of a man who knows that it is too late for anything to matter. "The members of the crew are divided into two factions. It appears that our physician has rallied half the crew to support his medical contention that our exalted passenger belongs in the refrigerator. The good captain, with some justice, one must admit, thinks that he is in command of the ship, and prefers to believe that R'thagna Bar belongs out of the refrigerator."

"Who seems to be winning the argument?"

"Argument? There's no argument, old man—it's open warfare. No weapons aboard, of course, but the two teams are grappling up and

down the corridors and shuttling our exhalted passenger in and out of the ice box about four times each hour. Quite a sight, really. Right now he's *in* the refrigerator, but the other team—"

"Let me know who's ahead from time to time, will you?" Hansen heard himself say.

"Glad to oblige," the navigator said, yawning again. "Oh, incidentally, have they sent for help yet?"

Hansen said with some surprise, "Why, as a matter of fact, Sector Headquarters is sending some help. How did you know?"

"Bound to happen sooner or later, old man. When the going really gets tough they always get around to sending a Gypsy. Only way to get anything done, you know."

"I don't know," Hansen said reluctantly. "Why is it that everyone knows except me? What, please, is a Gypsy?"

"You're too young to know everything, old man," the navigator said. "You're especially too young to know about one of the Federation's best kept secrets. But you might as well, I suppose. The fact is that a Gypsy is a generally vagrant, dirty, thieving, clever scoundrel who will not work, who has absolutely no respect for order or authority, who believes that our institutions are effete and—"

"But then why—"

"Patience, patience," cautioned the navigator, haughtily, "if I am to reveal everything I know, I must do it in my own way. The description I just gave you is not necessarily true. It is simply the way that Sector Headquarters feels about Gypsies. Common jealousy, really. It seems that from time to time, our perfect little galactic society spawns men who don't care to be cast in the common mold. In short, there are a few men around with brains who don't think that it means very much to wear pretty uniforms or fancy titles."

"Uniforms like yours?" asked Hansen.

"Precisely," the navigator said sadly. "The truth of the matter is, of course, that I only play at being a navigator. I couldn't get this ship off course, if I tried. The same is true with the four engineering officers who stand around watching the Hegler drive units. They occasionally make a ceremonial adjustment, but beyond that, they simply stand around looking pretty."

"No moving parts." Hansen said.

"No moving brains, if you like. Anyway, a Gypsy has—somewhere along the line—learned how to do things. They'll take an emergency call about once a year—if they happen to feel like it. Then they charge about half a million credits."

"You mean they have an organization, standard rates and—"

"Heavens no!" the navigator said. "They hate anything that smells like organization. They don't even specialize in any certain kind of work. One year they'll be fascinated by sub-nucleonics, the next by horse racing. Very erratic. Can't keep attention on any one thing. Heard of one once who engaged in fishing and alcohol drinking. Brilliant mathematician, too. But he'd only take a call once every three years or so."

"For a half million credits a crack, eh? You could live pretty well for three years on that."

"Strangely enough," the navigator said thoughtfully, "they don't really have any interest in money. If you'd ever met one, you'd know that the high fee is sort of a penalty they mete out to everyone else for being so dumb."

"Well, one thing for sure," Hansen said, "if Bullard and Quemos are the cream of the crop, I'm on the side of the Gypsies."

"Ah, youth!" the navigator said, "I, too, once had such dreams—"

"We'll see about the dreams," Hansen said, almost menacingly, "I didn't spend six years in that damn school just to sit around in a pretty uniform for the rest of my life."

"Oh, you'll get used to it. In fact, you'll like it after a while. The home leaves. The fuss your friends will make over you when you step off the ship. The regular and automatic promotions in grade with the extra gold band added to your sleeve; the move from one outpost to an always larger installation. You'll never do much, of course, but why should you? After all, there aren't any moving parts."

Hansen cut the communicator off. He stood there for a moment, feeling depressed and betrayed. Automatically he reached down and flicked imaginary dust from his blue sleeve with its narrow solitary gold band. Ten minutes later the Gypsy's ship signaled for landing.

The man who walked into Hansen's control room was hardly the ogre he had been prepared for. He looked, Hansen was later to reflect, like Santa Claus with muscles in place of the fat. Wearing an almost unheard of beard and dressed in rough clothes, he walked across the room and made short work of the usual formalities. "Name's Candle," said the man. "Where's those two phonies I'm supposed to replace?"

"You'll have to go suit up and go back through the airlock," Hansen said, motioning to the door. "They're in their ship. It's the one next to yours. Want me to tell them you're on your way over?"

"Hell, no," said Candle, grinning, "I'll surprise 'em. Now, suppose you and me sit down and have a little chat."

They sat and Candle pumped Hansen of everything he knew about the entire situation. An hour later, Hansen felt almost as if he had been had. "Is that all?" he asked, wearily.

"I got the facts," Candle said. "Now let's go throw those experts out." It wasn't quite that simple. Neither Bullard nor Quemos had any intention of simply clearing out. "Who the hell you think you are," Bullard said, "to come over here and order us off? We didn't even ask for help. And, God knows, you couldn't supply it anyway." Bullard, with evident distaste, ran his eyes up and down Candle's clothing.

Dr. Quemos had some ideas, too. "Letter of authority or no letter of authority," Quemos said, pointing a manicured forefinger at the paper in Candle's hand, "you'll ruin everything! You have no idea what you're up against. We've spent weeks working this thing out—"

Candle grinned. "What've you worked out?"

"Why—why we know that this is a metal double enveloping worm gear."

"Wrong," Candle said. "It's a single enveloping worm gear. It's made of steel with an aluminum alloy wheel gear and the two parts have corroded and stuck. The whole mechanism was originally designed for submarines."

Quemos started to say something, then turned and looked at Bullard for reassurance. "He's crazy," Bullard said, "he's making it up as he goes along. How could he possibly know what he's talking about? Why, there haven't been any submarines for centuries."

"I'm tired of playing games," Candle said, no longer grinning. "The boy and I have work to do. You two are in the way. You'll only take up time

if I have to work with you and show you what to do. I want you and your ship out of here in half an hour."

"Who's going to make us?" Bullard asked with great originality.

"I am."

Everybody turned around to see who else had entered the conversation. It was Hansen. "I'm going to give you fifteen minutes, not thirty," Hansen said. "Then I'm going to turn the grid power on at full intensity. You can either use it to take off, or sit around and roast alive inside your ship." Candle turned and looked at Hansen with new respect. "Okay ... Let's go back to your place. I've still got some things to figure out."

Quemos was on the verge of hysteria. "You're bluffing! You wouldn't dare. I'll report this!"

Fifteen minutes later, the ship headed for space.

Back in Hansen's room, the two men ate a quick lunch, then sat at the table and talked about Candle's plans for opening the reluctant door. "The way I figure it," Candle said, "I think that we can handle the whole thing by radio. Which reminds me, one of these days I'm going to build a telescreen that will transmit and receive through pseudo-met. Not too difficult really if you approach the problem—"

"I better get Fromer for you," Hansen said hurriedly.

"Fromer here," said the bass voice.

"This is Candle. Let me talk to one of your so-called engineering officers."

"Who the hell—"

"Shut up and go get 'em," Candle growled back. "And one more yelp out of you and you'll stay in that ship till you rot."

There was a pause, then Fromer again, a meek Fromer. "My chief engineering officer is with me."

"Okay. Now get this. Come to think of it, you'd better record it. Number one: By now you know which component is a worm gear. You will notice, I'm quite certain, that it engages a large notched wheel. The reason that the door will not move is because at the point where the two gears meet, some of the metal has oxidized. For possible use in future emergencies, I offer this explanation. The entire mechanism is subject to periodic vacuum, when the airlock door is operated. In between times, the mechanism is in the ship's atmosphere. A condition of lower oxygen

content thus obtains around the sealed off area, and such an area is anodic—in other words, corrodible with respect to the surrounding areas in which oxygen has free access. Now, since this door has opened and closed successfully for about five hundred years, it appears that there's a special reason why it suddenly refuses to function. At a guess, you would experience this condition of intense corrosion only when the aluminum in the wheel gear is exposed to something like sodium hydroxide, and only at the point where it controls the worm gear. Now, has this ship landed recently within such an atmosphere?"

"Three weeks ago on Ghortin IV," said the weak voice of the engineer. "We landed to get some pictures of the cloud formations for souvenirs. We dropped on the edge of a large body of water because the view was better—"

Candle shook his head sadly and said, "You could have avoided trouble by coming in over the land instead of the water. The heat from the ship boiled the water which undoubtedly contained sodium carbonate and calcium hydroxide; presto, and the air was filled with clouds of sodium hydroxide.

"I suggest that you steer away from all such wicked places in the future. Of course, if you'd learn how to mine ore, smelt metal, machine components—"

"First they'd have to discover fire," Hansen said out of the corner of his mouth.

"You're catching on, son," Candle said, out of the corner of his mouth. "Now, gentlemen, to open the door it will be necessary to break the corroded area apart. This is a large heavy mechanism, as such things go. Since you have no tools heavy enough to batter the corroded area apart, you'll have to make some."

"How can we?"

Candle sighed. "I wish I had time to teach you to think, but instead, you'll have to do as I tell you to do. I think you can probably make a battering ram out of water. You just—don't interrupt—find or make a long cylindrical container, fill it with water and quick-freeze it in your refrigerator—"

"But they put R'thagna Bar in the refrigerator again—"

"Then I suggest you get him the hell out," Candle said.

An hour later ten men smashed a half-ton cylinder of ice against the corroded junction of the two gears. Following Candle's instructions, they next applied the ram to the door itself, which smoothly swung open. "You'll find," Candle explained, "that the only damage will be the two missing teeth on the aluminum gear. Since only two teeth are ever in contact at any time, you can simply slide the gear forward and engage it at a point where the teeth are intact. You'll find, I'm quite sure, that your door will function properly. Also, Captain, don't pull out of here until I'm aboard. I think I'd like to bring an assistant along, too."

"An assistant?" Hansen asked.

Candle twirled the ends of his long white moustache. "You, my lad, if you'd like to go along." He pulled a letter from his pocket and fanned the air with it. "I'm in complete command of this expedition—at least until His Exalted Excellency gets home to plant his seed."

Hansen's face glowed. "I can't think of anything I'd rather do. Let's get a couple of messages off to Sector Headquarters and get on board ship."

"It may not be any joy ride," Candle said thoughtfully. "You probably haven't heard about it, but there've been a number of ship emergencies in the past few weeks."

"Door failures?"

"No. At least none that I've heard of. But at least two Hegler drives have stopped working in mid space."

"But, but there's nothing to stop working—"

Candle's eyes twinkled. "No moving parts, eh?"

Hansen reddened. "I hope I've outgrown that silly notion."

Candle peered into Hansen's eyes. "I'm sure you have. I'm sure that you will find out a lot more things for yourself. You're the kind. And we're going to need a lot of your kind, because failures—failures of so-called perfect mechanisms—are becoming more and more commonplace." Candle pointed to the emergency light on the traffic control panel. "That light will be flashing with more and more frequency in the months to come. But not just to signal trouble in space. If I were a superstitious man, I'd think that the age of the perfect machine is about to be superseded by the age of the perfect failure—mechanical failures that can't be explained on any level. I have several friends who've been in touch with me recently about—"

"You think that it's time for a change?"

Candle smiled quickly. "That's the idea. And the truth of the matter is that I *am* a superstitious man. I really believe, childishly, that the mechanics and motions of the galaxy may turn themselves upsidedown just to snap man out of his apathy and give him some work to do."

Upsidedown turned out to be a good word. They boarded the big ship an hour later and were respectfully ushered into the presence of Captain Fromer and his staff.

"We're underway," Captain Fromer said. "We'll be landing in nine days to deliver R'thagna Bar home."

"How is he?" Hansen asked.

Fromer shrugged. "He's been thawed out, frozen, and thawed out so many times, it's anybody's guess. Take a look for yourself."

Someone pulled back a curtain to expose the recumbent, thawing, steamy form of His Exalted Excellency R'thagna Bar.

"Why's he undressed?" Hansen asked.

"Funny, now that you mention it," Fromer said, puzzled, "why *is* he undressed?"

"Fascinating! Damnedest thing I've ever seen," Candle said.

"What's so fascinating?" Fromer asked suspiciously, moving closer.

"His belly. Never saw anything like it. Those black squares keep appearing and disappearing. If I've ever seen a truly random pattern—"

"It started right after they froze him the first time," Fromer said disconsolately.

"Fascinating, by Heaven," said Candle, who was now down on his hands and knees. "Look at that top sequence! Random, yet physiological. I've got a friend on Bridan III who'd trade anything for some photos of this. Get me some photo equipment, will you?"

Captain Fromer ran his hands through what was left of his hair. "Get him some photo equipment," he said to no one in particular, "and somebody make a truce with that idiot doctor long enough to get me a sedative." About this time the ship turned upsidedown.

"But there's no reason for it!" the chief engineer said, running alongside Hansen and Candle. "The ship can't turn upsidedown. Everything is functioning perfectly!"

"Really not interested," said Candle, running down the corridor's mile-long ceiling. "Figure something out for yourself for a change."

"But what I can't understand," said Hansen, dutifully trotting alongside, "is how you knew with such certainty how the door mechanism was made. Even if submarines *were* built like that, you'd have no way of knowing. There haven't been any submarines in centuries."

"The hell you say," said Candle, increasing his pace, "I built one five years ago."

"Built one! What for?"

"For the hell of it, and it was a damned good outfit, too. I found plans in an old museum, and had the good sense not to improve on 'em. Always remember, boy, that something that really works can't be improved. That's why the submarine mechanism was adopted—not adapted—for space. The so-called 'better way' they're building 'em today is simply a disguise for the fact that most of the gas is gone from our technology."

"What happened to the submarine?"

"Oh, I traded it to a friend for some falcons. You interested in falconry by any chance?"

"Er, no. Can't say that I am."

"You will be," Candle said prophetically, "you'll succumb to every enthusiasm man has ever been deviled with. You're the type. It's a disease, boy, and the big symptom isn't just curiosity, but the kind of intense curiosity that turns you inside out, devours you and ruins you for orthodoxy."

Hansen had stopped listening. He was absorbed in trying to recall the pattern he had pressed on his radio belt—a pattern never taught to him—when the ship had suddenly turned upsidedown. Hesitantly, he played with the notion that he had been *thinking* of the ship traveling upsidedown at the time he impressed the novel pattern on the belt. Now, could that have possibly ... ?

The man and the boy disappeared down the ceiling, running at top speed to catch up as the rapidly vanishing form of R'thagna Bar was dragged and pulled relentlessly toward the refrigerator in a tug of war between the ship's wild, divided crew.

"Fascinating!" said Candle. His eyes, glittering with their own peculiar madness, remained riveted on the distant imperial belly. "Never saw anything like it!"

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